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ABSTRACT

The District Facilitator Project (DFP) assists local schools to improve their programs by linking them with exemplary projects in other school districts around the country. DFP provides coordination, technical assistance, and other services to aid implementation in the new location. The following objectives were stated for the program: (1) a majority of teachers trained in the National Diffusion Network (NDN) Micro Math program and a majority of teachers trained in NDN's Diagnostic Prescriptive Arithmetic (DPA) program will implement the programs during the 1985-86 school year; and (2) students in these programs will demonstrate increased mathematics achievement through test scores. The percentile rank of Micro Math students and fourth grade DPA students remained above the national norm, although only seventh- and eighth-grade Micro Math students increased their percentile ranks from 1985 to 1986. Only one-third of teachers trained in Micro Math and two-thirds of those trained in DPA implemented the programs. The following recommendations are made: (1) training and participation of teachers in special programs should be considered before changing their position, grade level, or school; and (2) teachers committed to implementing a program should be selected to receive training in the program. (LHW)

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FINAL EVALUATION REPORT
for the
**DISTRICT FACILITATOR
PROJECT**

E.C.I.A. CHAPTER 2

August 1986

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UD 025 458

DISTRICT OF COLUMBIA PUBLIC SCHOOLS

THE DISTRICT FACILITATOR PROJECT

FINAL REPORT

1985-1986

Prepared by
Division of Quality Assurance

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SUMMARY AND FINDINGS

Title

District Facilitator Project

Project Coordinator

Susan Williams

Project Location

Headquartered at Eaton School with programs in all regions of the District of Columbia Public Schools (DCPS) and in some non-public schools

Target Population

Teachers and administrators of public and private schools in the District of Columbia

Background

The District Facilitator Project works through the National Diffusion Network (NDN), a division of the U.S. Department of Education, to introduce nationally validated Developer/Demonstrator projects to local school districts. The project became fully implemented in the District of Columbia during the 1978-79 school year.

Stated Objectives

- A. A majority of the DCPS teachers who were trained in the NDN Micro Math Program will demonstrate that they implemented the program with their students during the 1985-86 school year.
- B. Students of DCPS teachers using the Micro Math Program will increase their mathematics achievement as demonstrated by significant increases in test scores.
- C. A majority of the DCPS teachers who were trained in the NDN Diagnostic Prescriptive Arithmetic (DPA) Program will demonstrate that they implemented the program with their students during the 1985-86 school year.
- D. A majority of students of DCPS teachers using the DPA Program will increase their mathematics achievement as demonstrated by significant increases in test scores.

Evaluation

The evaluation follows the Planning, Monitoring, and Implementing (PMI) Evaluation Model for Decision Making which was developed by the Division of Quality Assurance, District of Columbia Public Schools.

Findings

1. Eighteen teachers were trained in Micro Math, but only six implemented the program. Four of the 12 non-users were reassigned to a different position or grade level, and one resigned from the school system. The six teachers who used the program implemented ideal or acceptable configurations at LoU level III or IV, and all increased the implementation level from fall to spring.
2. Seventh and eighth grade Micro Math students who took the CTBS tests in 1985 and 1986 had a higher percentile rank in mathematics in 1986 than they did in 1985. However, the percentile rank of ninth grade students was lower in mathematics in 1986 than it was for the same students in 1985, although it remained above the national norm (see Appendix C).

The percentile ranks are based on the CTBS total mathematics scores, which include both mathematics computation and mathematics concepts and applications. The Micro Math developer uses only the concepts and applications test to evaluate Micro Math student growth.

3. Thirteen of the 19 teachers who were trained in the DPA Program implemented the program throughout the year. A majority of the 13 users implemented ideal or acceptable configurations at LoU level III or IV, with an increase in implementation from fall to spring.
4. Percentile ranks in mathematics of fourth and fifth grade DPA students were lower in 1986 than they were for the same students in 1985. However, the percentile rank of fourth grade students, 51, remained above the national norm. It should be noted that the sample size (18) for the fourth grade was low (see Appendix D).
5. The average adoption cost for the DFP continued to drop. It was \$110.00 during the 1985-86 school year compared to \$130.65 for the 1984-85 school year.

BACKGROUND AND PROJECT DESCRIPTION

Introduction

Purpose - The purpose of the District Facilitator Project (DFP) is to assist local schools to improve their programs by linking them with exemplary projects that have been proven successful by the U.S. Department of Education in other school districts around the country. The DFP provides coordination, technical assistance, and other services that help to assure successful implementation in the new location.

Need - Rapid changes in the techniques and technology of education make it difficult for local school districts to keep abreast of the best and most appropriate current practices. The DFP provides the mechanisms by which the District of Columbia could meet this need by helping the District's public and non-public schools to adopt exemplary educational programs.

History - The DFP was fully implemented in the DCPS during the school year 1978-79. From 1978-81, adoption costs of local schools were paid primarily by Title IV-C funds. Since 1981, most of these costs have been covered by ECIA Chapter 2 funds. The National Diffusion Network provides funding for a full-time director.

Description of the Project

In cooperation with Developer/Demonstrator projects and local schools, the DFP leads interested teachers and administrators through a process that includes awareness, interest, pre-implementation planning, adoption, and evaluation. Services include awareness workshops, needs assessment, in-service training, on-site consultation with on-going technical assistance during the initial adoption, and follow-up assistance.

When an appropriate program has been selected, if other funding is not available, a Chapter 2 minigrant proposal is submitted to the coordinator of the District Facilitator Project, requesting financial assistance.

When an exemplary project is installed, it is called an adoption. Local schools and regions may apply for Chapter 2 minigrants to cover the cost of training and materials. The average adoption cost has been reduced from \$1200 in 1979-80 to \$110.00 in 1985-86 (see Appendix B).

Technical assistance is also offered to locally developed projects that have potential for national validation. DFP services are available to all District of Columbia Public and non-public schools.

EXTERNAL EVALUATION DESIGN--PLANNING, MONITORING, AND
IMPLEMENTING (PMI) EVALUATION MODEL FOR DECISION MAKING

The evaluation follows the Planning, Monitoring, and Implementing (PMI) Evaluation Model for Decision Making which was developed by the Division of Quality Assurance, District of Columbia Public Schools (see Appendix A). The evaluation design, which was developed at the beginning of the program year, consisted of the intended inputs, processes, and outcomes on specially designed status report forms. The interim report, which was distributed at the mid-point of the program cycle, described agreements or discrepancies between intended and observed inputs and processes. This final report includes the interim report data brought up to date plus the agreements and discrepancies between intended and observed outcomes for each objective. Supporting data are included in the appendixes. Preceding the PMI status report forms is the results section which summarizes the agreements and discrepancies for each objective and which states a general conclusion.

RESULTS

EVALUATION RESULTS SUMMARY

Objective A: A majority of the District of Columbia Public School teachers who were trained in the National Diffusion Network (NDN) Micro Math Program will demonstrate that they implemented the program with their students during the 1985-86 school year.

There was agreement between all of the intended and observed processes and between all but one of the intended and observed inputs. There was a discrepancy between the intended and observed outcome.

Eighteen teachers were trained in Micro Math. However, four of them were reassigned to a different position or grade level, and one resigned from the school system. Of the 13 possible users, six used the program. All of the six users implemented ideal or acceptable configurations at LoU level III or IV, and all increased their level of use from fall to spring.

Objective B: Students of DCPS teachers using the Micro Math Program will increase their mathematics achievement as demonstrated by significant increases in test scores.

There was agreement between all of the intended and observed processes and between all but one of the intended and observed inputs. There was partial agreement between the intended and observed outcome. The discrepancy in inputs is described in Objective A.

Seventh and eighth grade Micro Math students who took the CTBS tests in 1985 and 1986 had a higher percentile rank in mathematics in 1986 than they did in 1985. However, the percentile rank of ninth grade students was lower in 1986 than it was in 1985. Seventh grade students had a percentile rank of 58 in 1986. The percentile rank for the same students in 1985 was 49. The percentile rank of eighth grade students was 55 in 1986 and 52 for the same students in 1985. This year's ninth grade students had a percentile rank of 62 in 1986 and 67 in 1985. Although the percentile rank was lower in 1986, it was still above the national norm.

Test scores analyzed were CTBS total mathematics scores which include mathematics computation as well as mathematics concepts and applications. Only the mathematics concepts and applications test is used by the Micro Math developer to evaluate student growth.

Objective C: A majority of the DCPS teachers who were trained in the NDN Diagnostic Prescriptive Arithmetic (DPA) Program will demonstrate that they implemented the program with their students during the 1985-86 school year.

There was agreement between all of the intended and observed inputs and processes and a discrepancy between the intended and observed outcome.

Nineteen teachers were trained in the DPA Program, and 13 implemented the program throughout the year. A majority of the 13 users implemented ideal or acceptable configurations at LoU level III or IV, with an increase in implementation from fall to spring.

Objective D: A majority of students of DCPS teachers using the DPA Program will increase their mathematics achievement as demonstrated by significant increases in test scores.

There was agreement between all but one of the intended and observed inputs, agreement between all of the intended and observed processes, and a discrepancy between the intended and observed outcome. The discrepancy in inputs is described in Objective C.

Fourth and fifth grade DPA students had a lower percentile rank in mathematics on the 1986 CTBS tests than they did in 1985. Fourth grade students had a percentile rank of 51 in 1986. The percentile rank for the same students was 69 in 1985. The percentile rank of fifth grade students was 42 in 1986 and 56 for the same students in 1985. Percentile ranks of third grade DPA students could not be compared because their 1985 percentile ranks could not be retrieved by computer. The sample size of the fourth grade (18) was low.

Conclusions:

The percentile rank of Micro Math students and fourth grade DPA students remained above the national norm, although only 7th- and 8th- grade Micro Math students increased their percentile ranks from 1985 to 1986.

Only one third of the teachers who were trained in Micro Math and about two thirds of those trained in DPA implemented the programs. This, perhaps, had an effect on the size of the 4th- grade DPA group (18) and the 7th- grade Micro Math groups (32).

Recommendations

1. Training and participation of teachers in special programs should be considered before changing their position, grade level, or school.
2. Teachers who are committed to implementing a program should be selected to receive training in the program.

Decisions

This report will be forwarded to the project coordinator, project manager, LEA Chapter 2 director, the Superintendent, and the Board of Education to aid them in making decisions about this project.

FINAL REPORT

PLANNING, MONITORING, AND IMPLEMENTING (PMI) EVALUATION MODEL FOR DECISION MAKING

Reporting Form

Goal: To assist local schools to improve the teaching and learning process by linking them with programs identified as exemplary by the U.S. Department of Education

Objective A: A majority of the District of Columbia Public School teachers who were trained in the National Diffusion Network (NDN) Micro Math Program will demonstrate that they implemented the program with their students during the 1985-86 school year.

PART I

INPUTS

INTENDED	STATUS	OBSERVED
a. Coordinator, District Facilitator Project	Agreement	a. The evaluator met with the coordinator.
b. DCPS Basic Skills mathematics coordinator (Micro Math contact person)	Agreement	b. The evaluator met with the Micro Math contact person.
c. Eighteen Micro Math Program teachers, grades 7-9	Discrepancy	c. Of the 18 who were trained, four were reassigned and one resigned from the school system. Of the 13 possible users, six used the program.
d. Students of program teachers	Agreement	d. The names of students are on file.
e. A Micro Math Binder for each teacher, containing Teacher's Guide, Student Guide, Worksheets, answer sheets, Place Value Charts, and student check-up pages	Agreement	e. The evaluator examined a Micro Math Binder.
f. "Basically Basic" booklets	Agreement	f. The evaluator examined a "Basically Basic" booklet.
g. At least one microcomputer per school available for students in the program	Agreement	g. The contact person verified the availability of a computer in each school.

OBJECTIVE A

PART I (continued)

INPUTS

INTENDED	STATUS	OBSERVED
h. Adequate supplies and materials	Agreement	h. The contact person verified that adequate supplies and materials were available.
i. Innovation Configuration diagrams	Agreement	i. The evaluator examined the Innovation Configuration diagram.
j. LoU protocols	Agreement	j. The evaluator examined the LoU protocols.
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OBJECTIVE A

PART II

PROCESSES †

INTENDED	STATUS	OBSERVED
1.1 Program teachers will have received training in the Micro Math Program, arranged by either the coordinator, District Facilitator Project, or the DCPS Basic Skills mathematics coordinator.	Agreement	1.1 The coordinator verified that training was given on March 5, 1985.
1.2 Program teachers will schedule at least 35 to 40 lessons or 1/5 of their students' mathematics instructional time on the Micro Math Program.	Agreement	1.2 LoU interviews showed that program teachers scheduled 1/5 of their students' mathematics instructional time on the Micro Math Program.
1.3 Program teachers will use the materials provided by the program.	Agreement	1.3 LoU interviews showed that program teachers used the program materials.
1.4 Program teachers will assess student progress through the use of lesson check-up pages.	Agreement	1.4 LoU interviews showed that program teachers assessed student progress by use of lesson check-up pages.
1.5 Coordinator, DFP, will notify contact persons that the teachers will be interviewed in the fall.	Agreement	1.5 The coordinator verified that she notified the contact persons.
1.6 DFP personnel will notify teachers that they will be interviewed in the fall.	Agreement	1.6 A sample of letters sent to teachers was examined by the evaluator.

† Processes numbered to correspond with outcomes

OBJECTIVE A

PART II (continued)

PROCESSES †

INTENDED	STATUS	OBSERVED
1.7 DFP personnel will interview program teachers in the fall, using Innovation Configuration diagrams and LoU protocols.	Agreement	1.7 A list of teachers and their levels of use was submitted to the evaluator.
1.8 DQA personnel will telephone program teachers to arrange interviews in the spring.	Agreement	1.8 A list of teachers who were called to arrange interviews was submitted to the evaluator.
1.9 Program teachers will be interviewed in the spring by trained personnel who will use Innovation Configuration diagrams and LoU protocols to determine the extent of program implementation.	Agreement	1.9 Configuration diagrams, rating sheets, and tapes were submitted to the evaluator.

† Processes numbered to correspond with outcomes

OBJECTIVE A

PART III

OUTCOMES

INTENDED	STATUS	OBSERVED
1. Data submitted to the ECIA Chapter 2 Evaluation Team by June 30, 1986, will show that the majority of 7th, 8th, and 9th grade DCPS teachers trained in the NDN Micro Math Program implemented ideal or acceptable configurations of the program at LoU Level III, IV, or V, with an increase in implementation level from fall to spring.	Discrepancy	1. Of the 18 teachers who were trained in Micro Math, four were reassigned to a different position or grade level, and one resigned from the school system. Of the 13 possible users, six used the program. All of the six implemented ideal or acceptable configurations of the program at LoU level III, IV-A, or IV-B, and all increased the implementation level from fall to spring.

FINAL REPORT
PLANNING, MONITORING, AND IMPLEMENTING (PMI)
EVALUATION MODEL FOR DECISION MAKING

Reporting Form

Goal: To assist local schools to improve the teaching and learning process by linking them with programs identified as exemplary by the U.S. Department of Education

Objective B: Students of DCPS teachers using the Micro Math Program will increase their mathematics achievement as demonstrated by significant increases in test scores.

PART I

INPUTS

INTENDED	STATUS	OBSERVED
Inputs a through j are the same as those in Objective A.		
k. "Basically Basic" Booklets containing lessons, debugging exercises, reviews, and check-ups	Agreement	k. The evaluator examined a "Basically Basic" Booklet.
l. Problem-solving activities	Agreement	l. The evaluator examined the activities in the Micro Math Binder.
m. Job Worksheets	Agreement	m. The evaluator examined job worksheets in the Binder.
n. Criterion-Referenced Micro Math Test	Agreement	n. The evaluator examined the test in the Binder.
o. Program computer literacy test	Agreement	o. The evaluator examined the test in the Binder.
p. Program problem-solving test	Agreement	p. The evaluator examined the test in the Binder.
q. Citywide norm-referenced test data for 1985-86	Agreement	q. CTBS testing took place in May.
- 11 - 18		

OBJECTIVE B

PART II

PROCESSES †

INTENDED	STATUS	OBSERVED
1.1 Program students will complete the lessons and activities in "Basically Basic."	Agreement	1.1 The local contact person verified that the lessons and activities were completed.
1.2 Program students will complete the problem-solving activities.	Agreement	1.2 The local contact person verified that the problem-solving activities were completed.
1.3 Program students will complete the Job Worksheets.	Agreement	1.3 The local contact person verified that the Job Worksheets were completed.
1.4 Program students will practice the problem-solving skills of rounding and estimating; processing information from graphs, tables, and charts; solving word problems; and working with decimals, fractions and percentages, as taught in the Micro Math Program.	Agreement	1.4 The local contact person verified that these skills were practiced.
1.5 Program students will practice computer literacy skills.	Agreement	1.5 The local contact person verified that computer literacy skills were practiced.
1.6 All program students will take the program criterion-referenced tests and the citywide norm-referenced tests.	Agreement	1.6 The local contact person verified that program students took the program criterion-referenced tests. Citywide norm-referenced tests were taken in May 1986.

† Processes numbered to correspond to outcomes

OBJECTIVE B

PART III

OUTCOMES

INTENDED	STATUS	OBSERVED
1. Analysis of test scores submitted to the DQA by June 1986, by the program contact person will show that program students significantly increased their mathematics achievement as measured by at least two project criterion-referenced tests or by the citywide norm-referenced test as follows: a. There will be a significant difference at the .05 level between the means of the pretest and posttest scores on the criterion-referenced Micro Math tests. b. There will be a significant difference at the .05 level between the means of the pretest and posttest scores on the program computer literacy tests. c. There will be a significant difference at the .05 level between the means of the pretest and posttest scores on the program problem-solving test.	Partial Agreement	

OBJECTIVE B

PART III (continued)

OUTCOMES

INTENDED	STATUS	OBSERVED
d. Results of norm-referenced tests retrieved by computer will show that Micro Math students in user teacher classrooms who took the citywide norm-referenced tests in 1985 and 1986 had a higher percentile rank on the mathematics portion of the 1986 test than they did on the 1985 test.		1d. This year's seventh and eighth grade Micro Math students who took the CTBS tests in 1985 and 1986 had a higher percentile rank in mathematics in 1986 than they did in 1985. However, the percentile rank of ninth grade students was lower in 1986 than it was for the same students in 1985. Seventh grade students had a percentile rank of 58 in 1986. The percentile rank for the same students in 1985 was 49. The percentile rank of eighth grade students was 55 in 1986 and 52 for the same students in 1985. This year's ninth grade students had a percentile rank of 62 in 1986 and 67 in 1985. Although it was lower in 1986, it was still above the national norm. Test scores analyzed were CTBS total mathematics scores, which include mathematics computation as well as mathematics concepts and applications. Only the mathematics concepts and applications test is used by the Micro Math developer to evaluate student growth.

FINAL REPORT
PLANNING, MONITORING, AND IMPLEMENTING (PMI)
EVALUATION MODEL FOR DECISION MAKING

Reporting Form

Goal: To assist local schools to improve the teaching and learning process by linking them with programs identified as exemplary by the U.S. Department of Education

Objective C: A majority of the DCPS teachers who were trained in the NDN Diagnostic Prescriptive Arithmetic (DPA) Program will demonstrate that they implemented the program with their students during the 1985-86 school year.

PART I

INPUTS

INTENDED	STATUS	OBSERVED
a. Coordinator, District Facilitator Project	Agreement	a. The evaluator met with the coordinator.
b. DCPS DPA contact person in Region A and at Shaed School	Agreement	b. The evaluator met with the contact persons.
c. Nineteen elementary classroom teachers trained in the DPA Program	Agreement	c. Nineteen teachers were trained in the DPA Program, but only 13 implemented the program.
d. Students of program teachers	Agreement	d. The list of students is on file.
e. Adequate classroom space to implement the program	Agreement	e. The contact persons verified that there was adequate space.
f. Adequate supplies and materials	Agreement	f. The contact persons verified that there were adequate supplies and materials.
g. Innovation Configuration diagrams	Agreement	g. Diagrams were submitted to the evaluator.
h. LoU protocols	Agreement	h. Protocols were submitted to the evaluator.

OBJECTIVE C

PART II

PROCESSES †

INTENDED	STATUS	OBSERVED
1.1 Program teachers will receive training in the DPA Program sponsored by the District Facilitator Project.	Agreement	1.1 The program analyst and the secretary verified that the training was given on January 28, 1985.
1.2 Teachers will administer the DPA diagnostic tests to students.	Agreement	1.2 The coordinator verified that the DPA diagnostic tests were administered to students.
1.3 Teachers will group students for instruction based on diagnostic test results.	Agreement	1.3 The coordinator verified that diagnostic test results were used to group students.
1.4 Teachers will use concrete materials, activities, and instructional procedures described in the DPA Manual and teacher resource books.	Agreement	1.4 The use of those materials, activities, and instructional procedures was verified by LoU interviews and by the program analyst.
1.5 Teachers will supplement CBC materials, using DPA materials such as the Class Analysis Chart and Student Progress Charts for planning and recordkeeping.	Agreement	1.5 The use of DPA material was verified by LoU interviews and by the program analyst.
1.6 DFP personnel will notify teachers that they will be interviewed in the fall.	Agreement	1.6 A sample of letters to teachers was examined by the evaluator.
1.7 DFP personnel will interview program teachers in the fall, using Innovative Configuration diagrams and LoU protocols.	Agreement	1.7 A list of teachers and their levels of use was submitted to the evaluator.

† Processes numbered to correspond with outcomes

OBJECTIVE C

PART II (continued)

PROCESSES †

INTENDED	STATUS	OBSERVED
1.8 DQA personnel will telephone program teachers to arrange interviews in the spring.	Agreement	1.8 A list of teachers who were called to arrange interviews was submitted to the evaluator.
1.9 Program teachers will be interviewed in the spring by trained personnel who will use Innovation Configuration diagrams and LoU protocols to determine the extent of program implementation.	Agreement	1.9 Configuration diagrams, rating sheets, and tapes were submitted to the evaluator.

† Processes numbered to correspond with outcomes

OBJECTIVE C

PART III

OUTCOMES

INTENDED	STATUS	OBSERVED
1. Data submitted to the ECIA Chapter 2 Evaluation Team by June 30, 1986, will show that the majority of DCPS elementary teachers trained in the NDN DPA Program implemented ideal or acceptable configurations of the program at LoU Level III, IV, or V, with an increase in implementation level from fall to spring.	Discrepancy	1. Of the 19 teachers trained in the DPA Program, 13 implemented the program throughout the year. LoU interviews conducted in the spring showed that a majority of the 13 users implemented ideal or acceptable configurations at LoU level III or IV with an increase in implementation from fall to spring.

PLANNING, MONITORING, AND IMPLEMENTING (PMI) EVALUATION MODEL FOR DECISION MAKING

Goal: To assist local schools to improve the teaching and learning process by linking them with programs identified as exemplary by the U.S. Department of Education

PART I

INTENDED	STATUS	OBSERVED
Inputs a through f are the same as those in Objective C.		
g. Citywide norm-referenced test	Agreement	g. CTBS testing took place in May.

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OBJECTIVE D

PART II

PROCESSES †

INTENDED	STATUS	OBSERVED
1.1 Program students will participate in diagnostic testing.	Agreement	1.1 The coordinator verified that students took the diagnostic tests.
1.2 Program students will work with concrete materials to develop concepts and skills.	Agreement	1.2 The program analyst verified that students worked with concrete materials.
1.3 Program students will collect data and develop charts and graphs to represent and interpret data.	Agreement	1.3 The program analyst verified that students collected data and developed charts and graphs.
1.4 Program students will keep folders of their work and record their progress on charts.	Agreement	1.4 The program analyst verified that students kept folders and charts.
1.5 Third and sixth grade program students will take the citywide norm-referenced test in the spring.	Agreement	1.5 Students took the citywide norm-referenced tests in May 1986.

† Processes numbered to correspond with outcomes

OBJECTIVE D

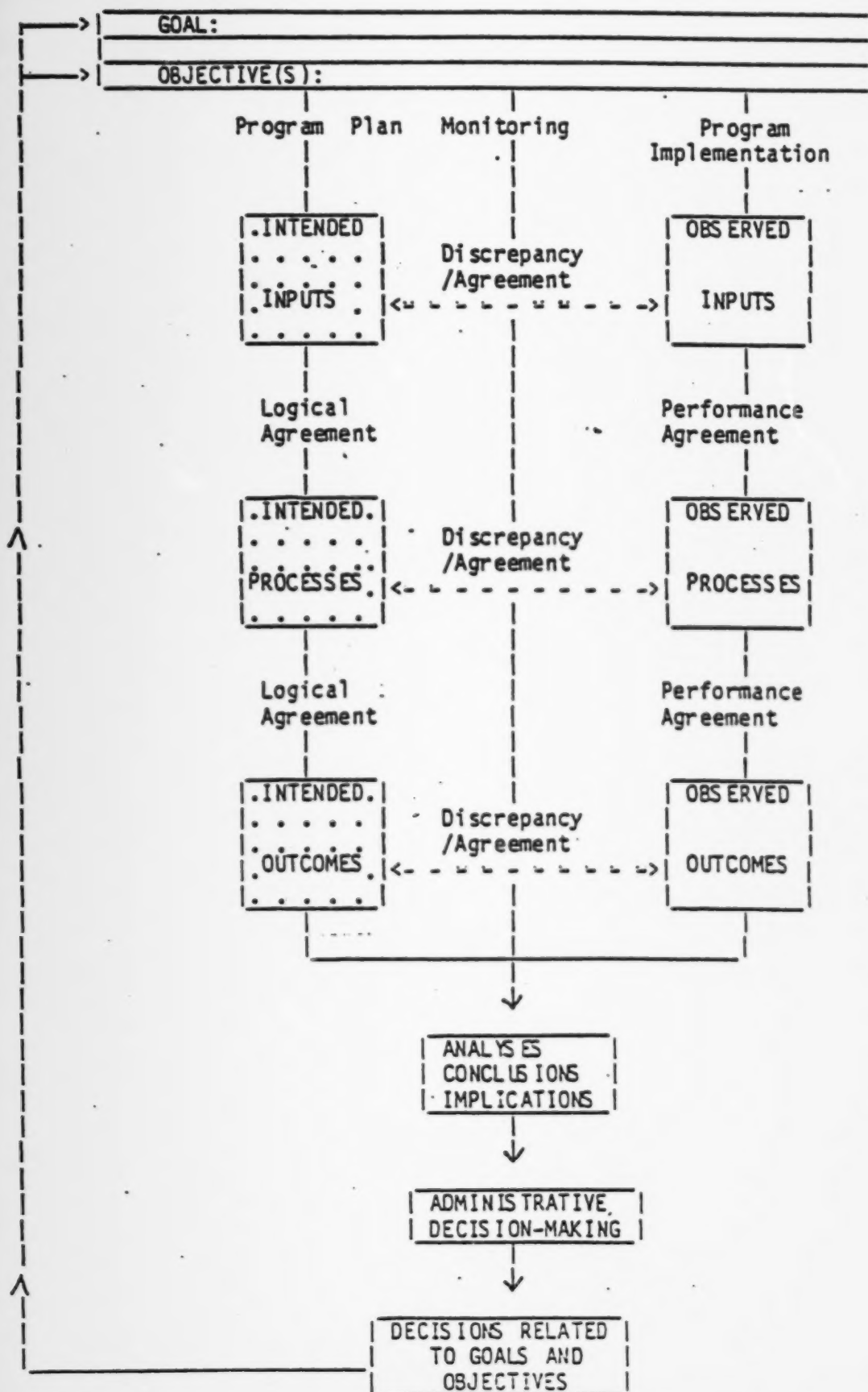
PART III

OUTCOMES

INTENDED	STATUS	OBSERVED
1. Results of norm-referenced tests retrieved by computer will show that DPA students who took the citywide norm-referenced tests in 1985 and 1986 had a higher percentile rank in mathematics on the 1986 test than they did on the 1985 test.	Discrepancy	1. This year's fourth and fifth grade DPA students had a lower percentile rank in mathematics on the 1986 CTBS tests than they did in 1985. Fourth grade students had a percentile rank of 51 in 1986. The percentile rank for the same students was 69 in 1985. The percentile rank of fifth grade DPA students was 42 in 1986 and 56 for the same students in 1985. Percentile ranks of third grade DPA students could not be compared because their 1985 percentile ranks could not be retrieved by computer.

APPENDIX A
EVALUATION MODEL SCHEMA

EVALUATION MODEL SCHEMA



APPENDIX B
AVERAGE ADOPTION COST

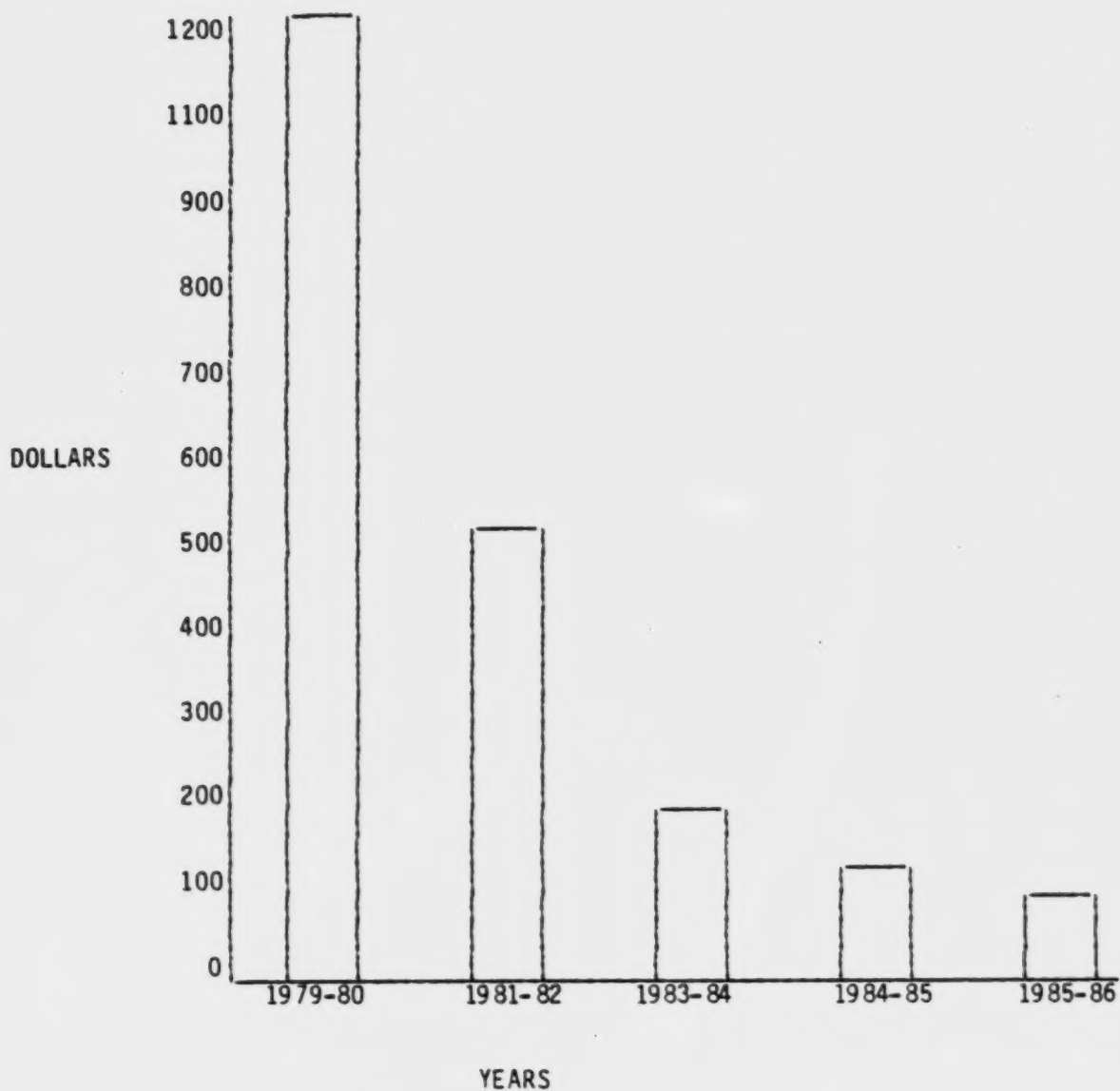


Figure 1. Average DFP Adoption Cost.

APPENDIX C
PERCENTILE RANKS OF MICRO MATH STUDENTS

Table 1

1986 Mean Percentile Ranks of 7th, 8th, and 9th Grade Micro
Math Students Compared to Their 1985 Percentile Ranks

1985 No. Grade 6			1986 No. Grade 7			1985 No. Grade 8			1986 No. Grade 9		
32	49	58	82	52	55	58	67	62			

APPENDIX D
PERCENTILE RANKS OF DPA STUDENTS

Table 2

1986 Mean Percentile Ranks of 4th and 5th Grade DPA
Students Compared to Their 1985 Percentile Ranks

1985		1986	1985		1986
No. Grade 3		Grade 4	No. Grade 4		Grade 5
18	69	51	83	56	42